LISTING OF THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A biomaterial for use in implantable orthopedic prosthetic devices ~~which material:~~ wherein said biomaterial comprises consolidated nanoparticles and

a. exhibits cytocompatibility with interfacing biological cells;

b. exhibits mechanical functionality with interfacing biological cells; ~~and~~

c. exhibits osteoblast adhesion between the implant and the interfacing biological cells; wherein the biomaterial

d. is a metal;

e. has a grain size less than about 500 nanometers; and

f. has a surface roughness less than about 500 nanometers root mean square (nm rms).

2. (Previously presented) A biomaterial as in claim 1 wherein the surface roughness is between 11 and 356 nanometers root mean square.

3. (Original) A biomaterial as in claim 2 which consists essentially of a titanium based metal.

4. (Previously presented) A biomaterial as in claim 3 wherein the titanium based metal has a particle size of less than about 500 nanometers and a surface roughness of about 11 nanometers root mean square.

5. (Original) A biomaterial as in claim 4 wherein said titanium based metal is commercially pure titanium.

6. (Previously presented) A biomaterial as in claim 1 wherein said metal is a titanium based alloy consisting essentially of, on a weight percent basis, of about 11 % titanium, 39% aluminum and 50% vanadium.

7. (Previously presented) A biomaterial as in claim 1 wherein the metal, on a weight percent basis, is a cobalt-chrome-molybdenum alloy consisting essentially of about 3% cobalt, 70% chromium and 27% molybdenum with the particle size less than about 200 nanometers and the surface roughness less than about 356 nanometers root mean square.

8. (Original) A biomaterial as in claim 1 wherein said metal is a powder.

9. (Previously presented) A biomaterial as in claim 8 wherein said powder is consolidated and compressed so as to form a surface for interfacing with biological tissue.

10. (Original) A biomaterial as in claim 8 wherein said powder is compressed at room temperature.

11. (Currently amended) A method of forming an implantable orthopedic prosthetic device including the steps of:

(a) providing a metal biomaterial in powder form;

1. which exhibits cytocompatibility within interfacing biological cells;
2. exhibits mechanical functionality with interfacing biological cells; and
3. exhibits osteoblast adhesion between the implant and interfacing biological cells; ~~wherein said biomaterial~~

~~4. is a metal;~~

~~5. has a grain size less than about 500 nanometers; and~~

~~6. has a surface roughness between about 360 and 11 nanometers root mean square; and~~

~~7. is provided in powder form; and~~

[[b.]] (b) compressing the powder in the absence of binders or sintering temperatures so as to form a consolidated composition comprising a surface for interfacing with biological cells, said consolidated composition having a grain size less than about 500 nanometers; and a surface roughness between about 11 and 360 nanometers root mean square

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12. (Currently amended) A biomaterial for use in implantable orthopedic prosthetic devices ~~which material:~~ wherein said biomaterial comprises consolidated nanoparticles and

a. exhibits cytocompatibility with interfacing biological cells;

b. exhibits mechanical functionality with interfacing biological cells; ~~and~~

c. exhibits osteoblast adhesion between the implant and the interfacing biological cells; wherein the biomaterial

d. is a metal; and

e. has a particle size ~~less than~~ between 200 and 500 nanometers and a surface roughness between 11 and 360 nanometers root mean square.

13. (Currently amended) A biomaterial for use in implantable orthopedic prosthetic devices ~~which material~~ wherein said biomaterial:

a. exhibits cytocompatibility with interfacing biological cells;

b. exhibits mechanical functionality with interfacing biological cells; ~~and~~

c. exhibits osteoblast adhesion between the implant and the interfacing biological cells; wherein the biomaterial

d. is a metal;

e. has a particle size less than 500 nanometers, and

f. has a surface roughness less than 500 nanometers root mean square (nm rms).

14. (Previously presented) A biomaterial as in claim 13 wherein the surface roughness is between 11 and 356 nanometers root mean square.

15. (Previously presented) A biomaterial as in claim 14 which consists essentially of a titanium based metal.

16. (Previously presented) A biomaterial as in claim 13 wherein the metal on a weight percent basis, is a cobalt-chrome-molybdenum alloy consisting essentially of about 3% cobalt, 70% chromium and 27% molybdenum with the surface roughness less than about 356 nanometers root mean square.